

How I Work as Poet and Scientist

BY ROALD HOFFMANN

I begin with a vision of unity of creative work in science and in the humanities and arts. The shared ground is clear: both involve acts of creation, accomplished through craftsmanship, with an attention to detail. Both science and art value the true economy of statement. They share a desire to communicate, although that often gets obscured by jargon and by the deadening ritual of the research report in science, by too personal a style or a disregard for audiences in art.

The creative act is cross-cultural and inherently altruistic. Both science and art also share elements of a common aesthetic. For instance, there is place in that aesthetic for the simple and the complex: a classic Greek temple is beautiful, and so is a molecule, $C_{60}H_{12}$, shaped as a dodecahedron. But an equal claim to the beautiful is made by the richness of a Bavarian rococo church and the seemingly tangled functional perfection of ribonuclease. Ultimately, the common ground is a shared, complementary struggle to comprehend what is in and around us.

Need I enumerate the forces counteracting that unity? C.P. Snow pointed out many in his "Two Cultures." I would add the philosophical intolerance of my straw-man scientist, setting up reductionism as the only way to understand a world that patently admits alternative solutions to everything except what goes on during the scientist's working hours. Scientists also have a tendency to falsely attribute simplicity to the humanities ("If a freshman class can discuss free will, there can't be much substance in philosophy—it's just talk!").

To be fair, the artist's faults are also easily perceived: an unwillingness to work a little to learn the language necessary for understanding in science, and a failure to recognize that science is often just common sense

Mind Grackles

We are circling, we are flying,
beating novice wings, not
in sky's jig, not in courting
darts, but
forces gentled,
forces earnest updrafts
for lift. It isn't easy
this flying, for something must
be forced past, something
molecular, and we must learn
to curl our wings just right,
so that which passes

passes
overwing, and part of us is always
falling, and part sucked up
by this fraction less of nothing
streamed by, a fast pull past,
a draw up to the sky. Feathered
airfoils bend, the wing is wind.
Flying
is a kind of balanced
falling,
out of the blue, black
squawk of us, into the by,
a slip of deeply forked tails,
a shift, askew, a swing.

From Lake Louise

Darkness ascends, catches
in the mountain bow,
if this mirroring lake
can invert glaciers, flip
moraines deftly up
grainy's chute, can
it deny me the loner's
spring of desire, to impact
my word past these cliffs
to newly blinking Sirius!
How else can I reach you?
The intent of love travels
at superluminal speed;
its ray reflects, making
you, two thousand miles
away, you who stand in
the driveway, having forgotten
to turn on the garage
lights, lift your eyes
to meet the selfsame
lord of the star-brood,
my messenger.

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mathematized.

Perhaps unity and division—the sometimes tense, sometimes complementary, sometimes merging dialogue between art and science—is by itself an element of aesthetics. I have no problem doing (or trying to do) both science and poetry. Both emerge from my attempt to understand the universe around me, from my own personal affection for communicating, teaching what I've learned, and from my infatuation with languages—the English language, as well as other languages that geopolitical accidents have thrust into my head. I love words—their definitions and origins, their relationship to each other: the power they have over

us, their obvious ability to transmit meaning in the face of an inherent circularity in their definitions.

It seems obvious to me to use words as best I can in teaching myself and my co-workers. Some call that research. Or to instruct others in what I've learned myself, in ever-widening circles of audience. Some call that teaching. The words are important in science, as much as we might deny it, as much as we might claim that they just represent some underlying material reality.

It seems equally obvious to me that I should marshal words to try to write poetry. I write poetry to penetrate the world around me, and to comprehend my reactions to it.

Some of the poems are about science, some not. I don't stress the science poems over the others because science is only one part of my life. Yet there are several reasons to welcome more poetry that deals with science.

Around the time of the Industrial Revolution—perhaps in reaction to it, perhaps for other reasons—science and its language left poetry. Nature and the personal became the main playground of the poet. That's too bad for both scientists and poets, but it leaves lots of open ground for those of us who can move between the two. If one can write poetry about being a lumberjack, why not about being a scientist? It's experience, a way of life. It's exciting.

The language of science is a language under stress. Words are being made to describe things that seem indescribable in words—equations, chemical structures and so forth. Words don't, cannot mean all that they stand for, yet they are all we have to describe experience. By being a natural language under tension, the language of science is inherently poetic. There is metaphor aplenty in science. Emotions emerge shaped as states of matter and, more interestingly, matter acts out what goes on in the soul.

One thing is certainly not true: that scientists have some greater insight into the workings of nature than poets. Interestingly, I find that many humanists deep down feel that scientists have such inner knowledge that is barred to them. Perhaps we scientists do, but in such carefully circumscribed pieces of the universe! Poetry soars, all around the tangible, in deep dark, through a world we reveal and make. ■

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